LOUISIANA MISSISSIPPI NEW YORK OHIO TEXAS

MEMORANDUM OF TRANSMITTAL

Date: June 2, 2008

TO:

Examiner Alton Pryor

Fax Number: 1-571-273-0621

FROM:

John F. Sieberth

RE:

Our discussion earlier today.

MESSAGES, NOTES, COMMENTS:

Please see the attached document.

NO. OF PAGES:

20 (Including Cover)

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Paper 63

Filed by: Trial Section Merits Panel Mail Stop Interference P.O. Box 1450 Alexendria VA 22313-1450 Tel: 571-272-9797 Fax: 571-273-0042

Filed 9 January 2006

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

SHUNONG YANG, WILLIAM F. McCOY, and ANTHONY W. DALLMIER Junior Party (Patent 6,156,229),

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ROBERT M. MOORE and CHRISTOPHER J. NALEPA Senior Party (Application 09/451,319).

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Patent Interference No. 105,223

Before SCHAFER, DELMENDO, and MOORE, Administrative Patent Judges.

DELMENDO, Administrative Patent Judge.

Decision - Rehearing - Bd. R. 125(c) (Including Recommendation to Examiner - Bd. R. 127(c))

Party Moore requests rehearing of: (1) our September 29, 2005 judgment (paper 59), as modified to correct a typographical error on October 24, 2005 (paper 61); and (2) our September 13, 2005 (paper 56) decision on Moore's preliminary motion 3 (paper 27, hereinafter "FM3"). (Moore Request for Rehearing of the Judgment filed on October 31, 2005, paper 62; Moore Request for Rehearing of the Decision on Moore Preliminary Motion 3 filed on September 28, 2005, paper 58.)

By way of background, we granted Moore's PM3 in part 10 because Moore satisfied the burden of proving that all of party Yang's involved claims (i.e., claims 10-17 of United States patent 6,156,229) are unpatentable under 35 U.S.C. \$\$ 102 and 103 as either anticipated by or obvious over certain prior art. (September 13, 2005 decision at 25-36.) 15 However, we also held that Moore did not adequately rebut the presumption under 37 CFR § 41.207(c) that all of its involved claims (i.e., claims 61-65 of United States application 09/451,319) are unpatentable over United States patent 3,558,503 issued to Goodenough et al. on January 26, 20 1971 (hereinafter "Goodenough," Exhibit 1003), one of the prior art references applied against Yang's involved claims. (September 13, 2005 decision at 36-40.) Further, we denied Moore's motion asserting that Yang's involved claims 10-17

fail to comply with the enablement requirement of 35 U.S.C. § 112, ¶1. (September 13, 2005 at 16-25.)

Moore does not challenge our decision with respect to PM3 as it applies to unpatentability of Yang's involved claims over the prior art or to compliance of Yang's involved claims with the enablement requirement of 35 U.S.C. § 112, ¶1. Instead, Moore requests a limited rehearing focusing on our holding that Moore failed to rebut the 37 CFR § 41.207(c) presumption of unpatentability of all of its involved claims over one of the prior art references (Goodenough) urged against opponent Yang's unpatentable involved claims.

According to Moore, we "misconstrued Moore's involved claims" and "misapprehended a distinction relating to the pH 15 at which the bromine addition step of the process of Moore's involved claims and the method suggested by the prior art are carried out." (Request for Rehearing of Decision on PM3 et 2.) Specifically, Moore contends that its claims require that "prior, during and at the end of the bromine addition 20 step (recited in the process of Moore's involved claims), the pH of the 'aqueous solution' and the resulting 'biocidal solution' is above 12.0." (Id. at 5.) Moore also notes that "neither party presented swidence in the current interference...on the issue of whether a motivation existed in the art to modify Goodenough in the manner recited in

Moore's involved claims (i.e., calling for a pH at or above 12.0 during an entire bromine addition step)." (Id. at 13.) Moore also argues that "[t]he presumption which arises under 37 C.F.R. § 41.207(c) only relates to the prior art cited against an opponents [sic, opponent's] claims." (Id. at 13.)

We deny Moore's substantive arguments as to the patentability of its involved claims over the cited prior art. However, we modify our decision sua sponte by vacating the previous judgment against Moore's involved claims 61-65 as being unpatentable over the prior art and entering a recommendation pursuant to 37 CFR 41.127(c) as we have relied on evidence in addition to Goodenough. This will safeguard Moore's procedural due process rights.

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As noted above, Moore admits (Request for Rehearing of Decision on PM3 at 13) that PM3 did not include any evidence on whether the alleged difference between Moore's involved claims and Goodenough would have been obvious to a person having ordinary skill in the art. This demonstrates that Moore did not adequately rebut the presumption of unpatentability pursuant to 37 CFR \$ 41.207(c). According to the United States Supreme Court, the question of whether a claim would have been obvious (i.e., unpatentable over the prior art) depends on at least four underlying factual inquiries: (1) the scope and content of the prior art; (2) differences between the prior art and the claims at issue; (3) the level of ordinary skill in the pertinent art; and (4) evaluation of any relevant secondary considerations. See Graham v. John Deere Co. of Kansas City, 383 U.S. 1, 17, 148 USPQ 459 (1966). Moore did not address all of these factors in rebuttal of the presumption.

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37 CFR § 41.127(c) RECOMMENDATION FOR FURTHER ACTION BY EXAMINER

I. Relevant Regulation Authorizing Recommendation

5 37 CFR § 41.127(c) provides:

(c) Recommendation. The judgment may include a recommendation for further action by the examiner or by the Director. If the Board recommends rejection of a claim of an involved application, the examiner must enter and maintain the recommended rejection unless an amendment or showing of facts not previously of record is filed which, in the opinion of the examiner, overcomes the recommended rejection. [Underscoring added.]

We recommend that the examiner enter and maintain a new ground of rejection based on the followings findings of fact (FF) and conclusions of law.

20 II. Findings of Fact

- 1. Moore's involved claims read as follows:
- 61. A process of producing a concentrated stabilized biocidal composition which comprises mixing bromine with an aqueous solution formed from water, sulfamic acid and alkali metal base, wherein the pH of said aqueous alkali metal sulfamate solution is such that the pH of the resulting biocidal composition is from about 12.0 to 14.0.
 - 62. A process according to Claim 61 wherein the solution is cooled.
- 63. A process according to Claim 62 wherein the solution is cooled so that the temperature is from about 30°C to about 60°C.
- 64. A process according to Claim 61 wherein the said bromine is added in sufficient amount to obtain an active bromine content of at least about 100,000 PPM (wt/wt) and the atom ratio of nitrogen to active bromine is greater than 1.

- 65. A process according to claim 61, wherein the pH is from about 12.0 to about 13.5.
- 5 2. Moore's '319 application (page 5, lines 10-13) makes it clear to one skilled in the relevant art that maintenance of pH "at about 12 or above" is merely "desirable" or a preferred embodiment.
- 3. Goodenough discloses a process of producing an
 aqueous bromine solution with bromine values of
 about 0.01 to about 100,000 ppmw useful for
 bleaching processes, treatment of swimming pool
 water, and disinfection. (Column 1, lines 13-61.)
- 4. Specifically, Goodenough teaches a process of
 producing an aqueous bromine solution comprising
 providing an aqueous solution of bromine and
 contacting therewith, either successively or
 simultaneously, a bromine value stabilizer (e.g.,
 sulfamic acid) and an amount of hydroxide additive
 (e.g., magnesium hydroxide) sufficient to achieve a
 final pH in the system ranging from about 8 to about
 (Column 2, lines 1-40.)
- Goodenough also discloses that the molar ratio of bromine to nitrogen (Br₂:N₂) is from about 2 to about
 0.5, which would have indicated to one of ordinary skill in the art that the atomic ratio of nitrogen

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- to active bromine (N:Br) is from about 0.5 to about 2. (Column 1, lines 66-69.)
- 6. Goodenough further teaches a Solution A "prepared by admixing 6.05 grams of sulfamic acid with about 500 grams of water, followed by addition of about 3.65 grams of magnesium hydroxide and about 5 grams of bromine." (Example 3, column 4, lines 66-69.)
- 7. Goodenough states that the final solution produced in Example 3 was placed in a brown ultraviolet light-screening bottle for about 4 days, thus indicating to one of ordinary skill in the art that cooling occurred. (Column 5, lines 1-5.)
- 8. Moore's own expert, B. Gary McKinnie, has stated that to achieve 100,000 ppm active bromine content

 (assuming 100% yield), "the pH of the aqueous alkali metal sulfamate solution [as described for Goodenough's Solution A] would be around 13.9 prior to bromine addition." (Exhibit 1001, filo6; Exhibit 1019.)
- 20 9. Dr. McKinnie states that the reaction disclosed in Goodenough would be exothermic. (Exhibit 1001, 1714, 102.)
- 10. United States patent 5,683,654 issued to Dallmier et al. (Dallmier) on November 4, 1997 (Exhibit 1004)

 teaches a process that "improves on the Goodenough

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- et al. reference by means of a safer, easier, and more economical process." (Column 2, lines 45-47.)
- 11. Dallmier suggests that a sulfamic acid stabilized hypobromite (N-bromosulfamate) can be stored in a high pH solution (pH from about 8 to about 14, and more preferably from about 11 to about 14) with minimal formation of the suspected carcinogen bromate. (Column 3, lines 28-32; column 4, lines 47-49; column 9, line 65 to column 10, line 60.)
- 12. Moore's expert, Dr. McKinnie, confirms that Dallmier teaches that a sulfamic acid stabilized hypobromite (N-bromosulfamate) can be stored in a high pH solution (pH from about 8 to about 14, and more preferably from about 11 to about 14) with minimal formation of the suspected carcinogen bromate.

(Exhibit 1001, ¶121.)

- 13. Dallmier further teaches that formation of bromate occurs from a reaction involving hypobromate as a reactant and not stabilized hypobromite. (Column 3, lines 24-26; column 10, lines 1-8.)
- 14. In Moore PM3 at 24, Moore asserted as follows:
- U.S. Patent No. 5,683,654 reports that formation of bromate, a suspected carcinogen, can be minimized in a stabilized solution of hypobromite (using sulfamic acid as the stabilizer) by maintaining the solution at a pH between 11 and 14. Fact 88. The '654 patent further teaches that the formation of bromate occurs by a reaction involving hyprobromite and not a stabilized

hypobromite (i.e., in the form of Nbromosulfamate). Fact 89. Thus, bromate formation is not dependent on the nature of the Nhydrogen compound used to stabilize the hypobromite. Accordingly, it would have been obvious to increase the pH of the neutral (N-bromo 5 compound containing) solutions prepared by the process taught...in the '503 patent [Goodenough]...by adding an additional step of increasing the pH to a range between 11 and 14. 10 The skilled artisan would have been motivated, in view of the teachings in the '654 patent, to add this additional step in order to minimize formation of the suspected carcinogen bromate 15 during storage... [Emphasis added.]

III. DISCUSSION

Moore's involved claims (claims 61-65 of application 09/451,319) should be rejected under 35 U.S.C. \$ 103(a) as unpatentable over Goodenough (Exhibit 1003) in view of Dallmier and the McKinnie declaration (Exhibit 1001).

An analysis of whether a claim is unpatentable over the prior art must include a meaningful construction of the claim as to its scope. Gechter v. Davidson, 116 F.3d 1454, 25 1457, 1460 n.3, 43 USPQ2d 1030, 1032, 1035 n.3 (Fed. Cir. 1997); In re Paulsen, 30 F.3d 1475, 1479, 31 USPQ2d 1671, 1674 (Fed. Cir. 1994). In construing unpatented claims, the United States Patent and Trademark Office (PTO) is obligated to give a disputed claim term its broadest reasonable interpretation, taking into account any enlightenment by way of definitions or otherwise found in the specification. 37 CFR § 41.200(b); In re Bigio, 381 F.3d 1320, 1324, 72 USPQ2d 1209, 1211 (Fed. Cir. 2004)("[T]he PTO gives a disputed

claim term its broadest reasonable interpretation during patent prosecution."); In re Morris, 127 F.3d 1048, 1054, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997)("[T]he PTO applies to the verbiage of the proposed claims the broadest reasonable meaning of the words in their ordinary usage as they would be understood by one of ordinary skill.").

Moore's claim 61 recites the transitory term
"comprises" in defining the steps of the claimed process.

In claim drafting, the term "comprises" not only alerts

10 potential infringers that the recited steps are essential,

but that other unrecited steps may be performed and still

form a construct within the scope of the claim. See, e.g.,

In re Baxter, 656 F.2d 679, 686, 210 USPQ 795, 802 (CCPA

1981). Thus, we construe the claimed process to read on

15 processes that include a further step of adding additional

base to increase the pH of the final biocidal solution.

Moore's claim 61 also recites the limitation "wherein the pH of said aqueous alkali metal sulfamate solution is such that the pH of the resulting biocidal composition is from about 12.0 to 14.0." By its express terms, the recitation does not contain any specific limitation on the pH of the aqueous alkali metal sulfamate solution (i.e., "the aqueous solution formed from water, sulfamic acid and alkali metal base"), although the pH of the aqueous alkali metal sulfamate solution must be such that the resulting

biocidal composition has a pH of about 12.0 to 14.0. Nor does the recitation contain any language requiring a particular pH value during mixing of bromine with the aqueous solution formed from water, sulfamic acid and alkali metal base. In fact, Moore's '319 application (page 5, 'lines 10-13) makes it clear to one skilled in the relevant art that maintenance of pH "at about 12 or above" is merely "desirable" or a preferred embodiment. (FF2.) Vulcan Eng'g Co., Inc. v. FATA Aluminum, Inc., 278 F.3d 1366, 1376, 61

USPQ2d 1545, 1551 (Fed. Cir. 2002) ("This court has often explained that the claims are construed in light of the specification, and are not limited to a designated 'preferred embodiment' unless the embodiment is in fact the entire invention presented by the patentee.").

Having construed Moore's claim 61, we turn to the evidence. Goodenough discloses a process of producing an aqueous bromine solution with bromine values of about 0.01 to about 100,000 ppmw useful for bleaching processes, treatment of swimming pool water, and disinfection. (FF3; column 1, lines 13-61.) Specifically, Goodenough teaches a process of producing an aqueous bromine solution comprising providing an aqueous solution of bromine and contacting therewith, either successively or simultaneously, a bromine value stabilizer (e.g., sulfamic acid) and an amount of hydroxide additive (e.g., magnesium hydroxide) sufficient to

achieve a final pH in the system ranging from about 8 to about 10. (FF4; column 2, lines 1-40.) According to Moore's own expert, Dr. McKinnie, the reaction described in Goodenough would be exothermic. (FF9.) Goodenough also discloses that the molar ratio of bromine to nitrogen (Br₂:N₂) is from about 2 to about 0.5, which would have indicated to one of ordinary skill in the art that the atomic ratio of nitrogen to active bromine (N:Br) is from about 0.5 to about 2. (FF5; column 1, lines 66-69.)

- In a working example, Goodenough teaches a Solution A

 "prepared by admixing 6.05 grams of sulfamic acid with about
 500 grams of water, followed by addition of about 3.65 grams
 of magnesium hydroxide and about 5 grams of bromine." (FF6;
 Example 3, column 4, lines 66-69.) Moore's own expert, B.
- 15 Gary McKinnie, has stated that to achieve 100,000 ppm active bromine content (assuming 100% yield), "the pH of the aqueous alkali metal sulfamate solution [as described for Goodenough's Solution A] would be around 13.9 prior to bromine addition." (FF8; Exhibit 1001, %106; Exhibit 1019.)
- Goodenough states that the final solution produced in Example 3 was placed in a brown ultraviolet light-screening bottle for about 4 days, thus indicating to one of ordinary skill in the art (based on the exothermic nature of the disclosed reaction) that cooling occurred. (FF7; FF9;
- 25 column 5, lines 1-5.)

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Goodenough's process of producing a final solution having a bromine content of about 100,000 ppmw differs from the process recited in Moore's claim 61 only in the pH of the resulting biocide composition. That is, Goodenough's 5 process results in a biocide solution having a pH of from about 8 to about 10 whereas Moore's claimed process results in a biocide composition having a pH of from about 12.0 to 14.0. Thus, as correctly pointed out by Moore (Request for Rehearing of the Decision on PM3 at 6), "the question is whether the prior art provided the motivation to modify the method of Goodenough with a reasonable expectation of success." The record indicates that the answer is in the affirmative.

Dallmier teaches a process that "improves on the Goodenough et al. reference by means of a safer, easier, and 15 more economical process." (FF10; column 2, lines 45-47.) As confirmed by Moore's own expert (EF12; Exhibit LANL, 1121), Dallmier suggests that a sulfamic acid stabilized hypobromite (N-bromosulfamate) can be stored in a high pH solution (pH from about 8 to about 14, and more preferably 20 from about 11 to about 14) with minimal formation of the suspected carcinogen bromate. (FF11; column 3, lines 28-32; column 4, lines 47-49; column 9, line 65 to column 10, line 60.) Dallmiar further teaches that formation of bromate occurs from a reaction involving hypobromate as a reactant

and not stabilized hypobromite. (FF13; column 3, lines 24-26; column 10, lines 1-8.)

Hence, one of ordinary skill in the art would have been led to combine the teachings of Goodenough and Dallmier.

5 Specifically, one of ordinary skill in the art would have found it prima facis obvious to modify Goodenough's process to include a further step of increasing the pH of the final solution to 12-14, as suggested by Dallmier, in order to minimize the formation of the suspected carcinogen bromate during storage, thus arriving at a method encompassed by Moore's involved claims.

A conclusion that there is motivation to combine

Goodenough with Dallmier to arrive at the subject matter of

Moore's claims is entirely consistent with Moore's repeated

15 assertions that one of ordinary skill in the art would have

found it obvious to increase the pH of Goodenough's solution

to 11-14. (FF14; PM3 at 24; Moore Reply 3 at 10.) In Moore

PM3 at 24, Moore urged:

U.S. Patent No. 5,683,654 reports that formation 20 of bromate, a suspected carcinogen, can be minimized in a stabilized solution of hypobromite (using sulfamic acid as the stabilizer) by maintaining the solution at a pH between 11 and 14. Fact 88. The '654 patent further teaches that the formation of bromate occurs by a reaction 25 involving hyprobromite and not a stabilized hypobromite (i.e., in the form of Nbromosulfamate). Fact 89. Thus, bromate formation is not dependent on the nature of the N-30 hydrogen compound used to stabilize the hypobromite. Accordingly, it would have been obvious to increase the pH of the neutral (N-bromo

compound containing) solutions prepared by the process taught...in the '503 patent [Goodenough]...by adding an additional step of increasing the pH to a range between 11 and 14. The skilled artisan would have been motivated, in view of the teachings in the '654 patent, to add this additional step in order to minimize formation of the suspected carcinogen bromate during storage... [Emphasis added.]

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Although Moore's assertions were made in an effort to invalidate Yang's claims, these assertions are equally applicable to Moore's claims, which are directed to subject matter that is the same or patentably indistinct from that of Yang's claims. Accordingly, it follows that one of ordinary skill in the art would have been led to increase the pH of Goodenough's final biocide solution to a pH of about 12-14 with a reasonable expectation of minimizing carcinogenic bromate formation during storage, as repeatedly argued by Moore, thus arriving at a process encompassed by Moore's claims 61 through 65.

The subject matter of Moore's claim 64, which recites an active bromine content of "at least about 100,000 ppm (wt/wt)" and an atomic ratio of nitrogen to active bromine of "greater than 1," would also have been obvious to a person having ordinary skill in the art because the prior art ranges and the claimed ranges overlap. In re Peterson, 315 F.3d 1325, 1329-30, 65 USPQ2d 1379, 1382-83 (Fed. Cir. 2003); In re Geisler, 116 F.3d 1465, 1469, 43 USPQ2d 1362, 1365 (Fed. Cir. 1997); In re Woodruff, 919 F.2d 1575, 1578,

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16 USPQ2d 1934, 1936-37 (Fed. Cir. 1990). This is because "[t]he normal desire of scientists or artisans to improve upon what is generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages." In re Peterson, 315 F.3d at 1330, 65 USPQ2d at 1382.

Moore argues that "the 'pH of the resulting blocidal composition' [recited in Moore's claims] necessarily is the pH after the bromine has been mixed with the aqueous solution." (Request for Rehearing of the Decision on Moore 10 PM3 at 3.) We generally agree with Moore's proposed construction of this claim language but only to the extent that the claims do not exclude a process that includes a further step of increasing pH to 12-14 after the recited step of mixing bromine with the aqueous solution. In other 15 words, the recited pH may be obtained after performing a further step of increasing pH as suggested by Dallmier. The use of the transitory term "comprises" to define the steps of the claimed process does not exclude such an additional 20 atep.

Moore also contends that its claims require that , "prior, during and at the end of the bromine addition step, the pH of the 'aqueous solution' and the resulting 'biocidal composition' is above 12.0" (Request for Rehearing of the Decision on Moore PM3 at 3.) We disagree. Moore's claims

do not recite any pH requirement for any of the intermediate solution(s) "prior" to or "during" bromine addition.

Contrary to Moore's representation (Request for Rehearing of the Decision on Moore PM3 at 6), nothing in Moore's involved claims calls for any requirement with respect to "maintaining a high pH (at least 12.0 throughout the bromination step..."

Moore argues that "no evidence exists in the record to suggest that N-bromosulfamate is even formed upon addition of bromine to an aqueous alkali metal sulfamate solution having a pH above 12.0." (Request for Rehearing of the Decision on PM3 at 13.) Moore, however, has asserted that N-bromosulfamate is formed in Goodenough (PM3 at 22-23) and that one of ordinary skill in the art would have found it obvious to increase the pH of Goodenough's biocidal composition to 11-14 (FF9; PM3 at 24; Moore Reply 3 at 10).

In our September 13, 2005 decision at 14 and 39, we also referred to other evidence in the form of Exhibits 2021 (1964, 92), 2022 (1969, 97), and 2023 (1969). However, these additional documents are consistent with and are cumulative to Moore's repeated assertions of fact in this interference. Accordingly, we do not need to discuss or rely upon them.

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ORDER

For these reasons, it is:

ORDERED that we have instructed the examiner to enter and maintain a rejection under 35 U.S.C. § 103 of Moore's involved claims 61-65; and

FURTHER ORDERED that our September 13, 2005 decision on preliminary motions and our September 29, 2005 judgment are modified accordingly.²

It is FURTHER ORDERED that Moore's application

10 09/451,319 is returned to the jurisdiction of the

Commissioner of Patents for action not inconsistent with
this opinion. 37 CFR 5 41.103.

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	/Richard E. Schafer/)
	RICHARD E. SCHAFER	- ;
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25) }
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	JAMES T. MOORE	-)
•	Administrative Patent Judge)
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² Except as modified herein, all aspects of our September 13, 2005 decision and our September 29, 2005 judgment are in force.

cc (via overnight delivery):

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